JUNE, 1905.

ENTOMOLOGICAL NEWS

Vol. XVI. No. 6

Cryptohalictoides spiniferus Viereck.

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PHILADELPHIA:
ENTOMOLOGICAL ROOMS OF
THE ACADEMY OF NATURAL SCIENCES,
LOGAN SQUARE.

Entered at the Philadelphia Post-Office as Second-Class Matter.

ENTOMOLOGICAL NEWS

Published monthly, **excepting July and August,** in charge of the Entomological Section of the Academy of Natural Sciences, Philadelphia, and the American Entomological Society.

ANNUAL SUBSCRIPTION, $1.00 IN ADVANCE.

Outside of the United States and Canada, $1.20.

Advertising Rates: 30 cents per square inch, single insertion; a liberal discount on longer insertions. No advertisement taken for less than 60 cents—Cash in advance.

☞ All remittances should be addressed to ENTOMOLOGICAL NEWS, Academy of Natural Sciences, 19th and Race Streets, Philadelphia, Pa.

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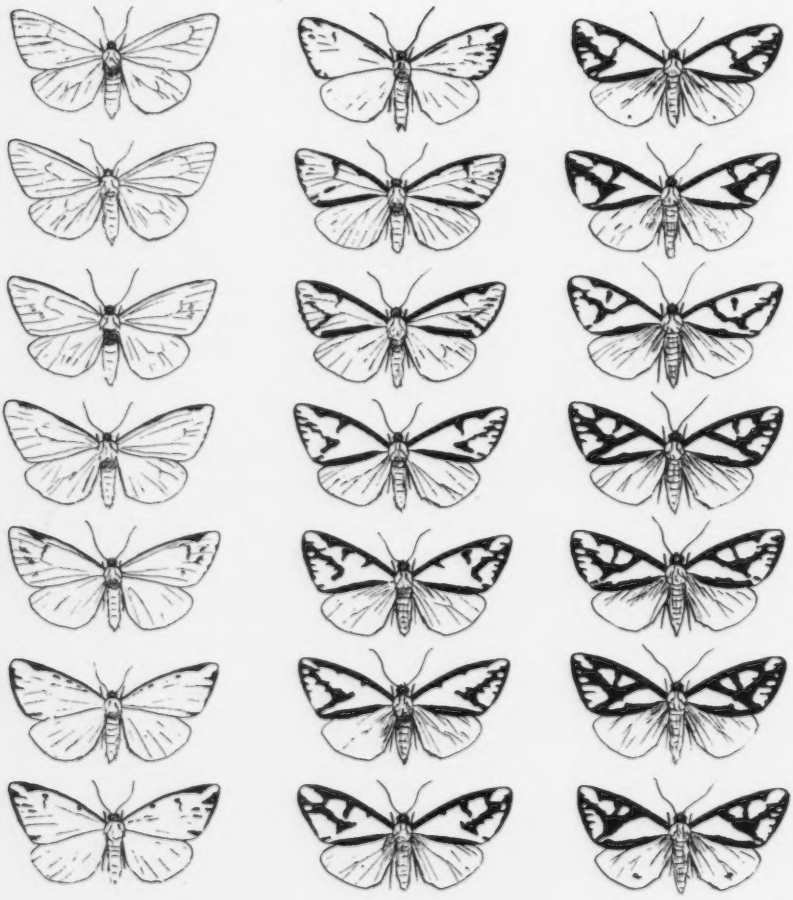

VARIATION IN CALLIMORPHA.

C. COLONA VAR. REVERSA STRETCH.

(See May NEWS, p. 154.)

ENTOMOLOGICAL NEWS

AND

PROCEEDINGS OF THE ENTOMOLOGICAL SECTION

ACADEMY OF NATURAL SCIENCES, PHILADELPHIA.

VOL. XVI. JUNE, 1905. No. 6.

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Three New South American Coccidae.

BY T. D. A. COCKERELL.

Aspidiotus riveræ n. sp.

♀.—Scale about 3 mm. long, oval, moderately convex, rough, grayish brown, with the large uncovered ochreous exuviæ near one end.

♀.—Length about 1890 μ; mouth-parts large, about 137 μ broad; antennæ represented by a minute tubercle with about five short bristles; anal orifice about 137 μ from hind end, and about 15 μ long; hind end not strongly chitinized, and with no long fusiform processes, but with many submarginal glands, and a row of transverse ones, very much as in *Chionaspis hikosani* Kuwana: five groups of circumgenital glands, median 7, cephalolaterals 21 to 22, caudolaterals 22 to 23; no noticeable spines or squames; lobes little developed, represented by three pairs of broad low rounded prominences, all wide apart, the margin between them, and especially beyond the third, irregular with more or less angular prominences; sides of hinder part of insect finely transversely striated.

Larva with antennæ 75 μ long, last joint long and slender, about 25 μ long; eyes (after mounting) very dark blue.

Hab.—Province of Arauco, Chile, on stems of *Chusquea* sp., graminaceous plant (Manuel J. Rivera). This is not a genuine *Aspidiotus*; it looks like an *Odonaspis* or possibly a *Pseudaonidia*, but it seems to represent a new group not yet named.

What I take to be male scales are small, oval, white, with exuviæ colored as on the female.

It is worth while to record that Mr. Rivera sent me *Epidiaspis piricola* (Del Guercio), collected at Santiago, Chile.

Ceroplastes schrottkyi n. sp.

♀.—Scale circular or nearly flattish, rounded above, dull ochreous, length and breadth each about 8 mm., height about 4½ mm., wax 1 to nearly 2 mm. thick; wax rough, no distinct plates; some obscure patches of snow-white secretion; beneath, the four lines of white secretion are close together, converging to a central point; crushed, the insects give a light vermillion color; boiled, they stain the liquid dark cherry red. Denuded ♀ about 6 mm. by 5½, height 3; dark red at the sides; region of anal plates black and thickened; caudal horn reduced to a low broad mammiform protuberance, directed upwards. Skin dark colored and strongly chitinous, with hyaline spots. Mouth-parts about 210 μ broad. Tarsus very short, about 37 μ long. Antennæ slender, apparently 7-jointed, but the segmentation obscure, joint 2 with a very long hair near the end; measurements of joints in μ: (1) 55? (2), 42, (3) 42, (4) prox. 50, (5) 25, (6) 25, (7) 35.

Hab.—Villa Encarnacion, Paraguay, on *Salix chilensis* Mol. (*S. humboldtiana* Willd.), sent by Mr. Schrottky, who recognized it as a new species. The denuded ♀ is suggestive of *C. africanus* Green, especially by the mammiform caudal prominence. The antennæ are rather like those of *C. sinensis* Del Guercio, which is otherwise very different, being doubtfully separable from *C. mexicanus* Ckll.*

Ceroplastes sanguineus n. sp.

♀.—Scale about 5 mm. long, 4 broad and about 1½ high; very flat, whitish strongly suffused with pink, dark red in middle, with the usual elongate boss of white secretion; division into plates very distinct. Denuded insect oval, soft, 3½ mm. long, 3 broad, about 1½ high, very dark caudal horn a black mammiform protuberance. Skin of dorsum with numerous dark tubular glands; margin with dark tubular glands, ending in sharp dark spines: coxæ very long; femur and trochanter about 187 μ; tibia 130; tarsus (excl. claw) 95; claw-digitules with large knobs; antennæ long and slender, 7-jointed, joints measuring in μ: (1) 62, (2) 52, (3) 90, (4) 62, (5) 25, (6) 25, (7) 40. On the ventral surface of

* Specimens collected by Mr. Marlatt on orange twigs at Monte Carlo and Mentone, have been compared with genuine *C. sinensis* from Liguria, and with *C. mexicanus* from Zapotlan, Mexico. I find some differences in the different lots, but the antennæ and legs are of the same type in all, and I do not feel satisfied that there is more than one species concerned.

the insect (as seen without preparation) the segmentation is indicated by black lines. The specimens described have not produced young; it is probable that they eventually become somewhat more convex.

Hab.—Villa Encarnacion, Paraguay, on the bark of small branches of a shrub (*Maytenus ?*), sent by Mr. Schrottky. It was suggested by Mr. Schrottky that the insect might prove identical with *C. communis* Hempel, but I have specimens of the latter from Mr. Hempel, and it is very different. The flattened shape is strongly suggestive of *C. depressus* Ckll., and *C. formicarius* Hempel; but *C. sanguineus* lacks the whitish ring and radiating purplish lines of the former, and differs from the latter in color, antennæ and legs, etc. The antennæ of the new species are not much like those of any other species known to me; they are quite different from those of *C. albolineatus* Ckll., which has the pink color. When *C. depressus* was discovered, living under bark, it was remarked that the flattened form was excellently adapted to the habitat; but now we have in *C. sanguineus* a much flattened species living entirely exposed.

The Type of the Genus Sphex.

By H. T. Fernald, Ph. D., Amherst, Mass.

Apparently no determination of the type of the genus *Sphex* has hitherto been made, and modern writers seem to have accepted the group as a natural one without considering whether the name is the one Linnæus intended for these insects. Recent investigation of this question by the writer, taken up on the supposition that the nomenclature of the group had long been settled, has led to such unexpected results, however, that it seems advisable to present them in connected form at this time.

In the tenth edition of the Systema Naturæ, Linnæus describes twenty-five species of *Sphex:* nine of these he places in the subdivision "Abdomine petiolato; petiolo elongato;" while the other sixteen are located in the division "Abdomine subsessili." Seven of the species are exotic from the standpoint of the author, hence of course are not available as possible types, leaving eighteen for consideration. Of these, all

have been removed from *Sphex* and placed in other genera, so that there is now no Linnæan species of *Sphex* of the tenth edition of the Systema Naturæ remaining, though the genus is well supplied with species.

How this came about is interesting. The twelfth edition of the Systema Naturæ and the works of succeeding writers added new species to the genus—species which met the diagnostic requirements of *Sphex*, but which nevertheless were not congeneric with any of those originally placed there. And while this process of addition was going on different writers were subtracting the original members of the genus and placing them elsewhere. Thus gradually and unconsciously the genus *Sphex* came to signify to the entomologists of the nineteenth century a group of insects quite different from any of those to which Linnæus had assigned it, and in 1805 the last species of the original list—*Sphex pectinipes*—was transferred by Panzer to *Larra*, and has finally found a resting place in *Tachysphex*.

If determination of the type by elimination were to be given inflexible acceptance it would follow from the above that *pectinipes* should never have been removed from *Sphex*, but should have been left as the type of the genus. But to correct this mistake, one hundred years old as it is, would involve such vast changes that it seemed better to the writer to seek for other methods of settling the case, and that of citation was therefore tested.

In 1761 appeared the "Fauna Suecica," by Linnæus, its dedication page dated "Upsaliæ, 1761, d. 28 Julii.," and the "Die Kennzeichen der Insekten" by J. H. Sulzer, containing an introduction by Dr. John Gesner which is dated "Den 26 Aug., 1761." These dates are presumptive evidence that the "Fauna Suecica" was the earlier publication of the two. In this work Linnæus lists under *Sphex* thirteen of the species of the Systema Naturæ, while Sulzer gives two. But one of these two had been removed by Linnæus to the genus *Chrysis*, leaving but one species common to both works—*Sphex sabulosa*—which would accordingly become the type of the genus.

If the writings of subsequent entomologists down to the nine-

teenth century be examined it will be found that whatever changes in the list of species of *Sphex* were made, *sabulosa* was always retained in that genus, showing that the older entomologists regarded it as a true *Sphex*. Thus Blumenbach, in his "Handbuch der Naturgeschichte," gives brief descriptions of the different genera with the names of one (sometimes two) species as examples, and under *Sphex* he gives *sabulosa* as the sole example. Fabricius, in his "Systema Piezatorum" in 1804, also recognizes the way in which the name *Sphex* was being used, for, rejecting Kirby's genus *Ammophila* established in 1798, in which *sabulosa* had been placed, he restores this species to *Sphex* and establishes the genus *Pepsis* for the post-Linnæan insects which had been placed in *Sphex* by later writers.

Linnæus' own rule that where a genus is divided the old generic name should be retained for that part of the genus including the most common or medicinal species should surely have weight in any case dealing with a Linnæan type, and the two species best known and best described by him appear to be *sabulosa* and *spirifex*. The latter being omitted from his "Fauna Suecica," three years later, however, again leaves *sabulosa* as the type of the genus *Sphex*.

This result is far less disturbing to nomenclature than the alternative one making *pectinipes* the type as it leaves the name of the family as before. The main changes produced will be that *Ammophila* will become a synonym of *Sphex* and the subfamily *Ammophilinæ* will become the *Sphecinæ*, and a new name will be needed for the genus recently known as *Sphex*. As there seem to have been no synonyms for this which can now be revived, the oldest subgenus *Chlorion* may be raised to generic rank (which was its original standing) as the generic name. A new name for the former subgenus *Sphex* will also be needed and for this the writer proposes the name *Proterosphex* (from πδοτερος older Σφήξ wasp) suggesting the name used for the insects of this group during the last century.

The results of these changes may perhaps be better appreciated by a comparison of the following tables:

PRESENT ARRANGEMENT.

Family.	Subfamilies.	Genera.	Subgenera.
Sphecidæ	Sphecinæ	*Sphex*	*Chlorion*
			Palmodes
			Parasphex
			Prionony x
			Sphex
			Isodontia
	Ammophilinæ	*Ammophila*	
		Psammophila	
	Sceliphroninæ		

PROPOSED ARRANGEMENT.

Family.	Subfamilies.	Genera.	Subgenera.
Sphecidæ	Chlorioninæ	*Chlorion*	*Chlorion*
			Palmodes
			Parasphex
			Prionony x
			Proterosphex
			Isodontia
	Sphecinæ	*Sphex*	
		Psammophila	
	Sceliphroninæ		

The type of the subgenus *Proterosphex* thus established is *Sphex maxillosus* Fab., as was designated for the subgenus *Sphex* by Kohl., as *Proterosphex* replaces that name.

Throughout this investigation it has been a great satisfaction to have had the active co-operation of Dr. W. H. Ashmead, and of Dr. C. W. Stiles, who is a member of the Commission on Nomenclature of the International Zoölogical Congress. These gentlemen have gone over the whole subject thoroughly and have fully endorsed the views herein presented, and the writer desires to express his deep appreciation of their kindness.

It may be added that the family name for this group of insects should be Sphecidæ rather than Sphegidæ, the genitive of *Sphex* being *Sphecos*, not *Sphegis*. The correct formation has already been indicated in the Century Dictionary.

Standards of the Number of Eggs Laid by Insects—III.*

Being averages obtained by actual count of the combined eggs from twenty (20) depositions or masses.

By Arsene Girault.

4 Hemerocampa (Notolophus) leucostigma Smith and Abbot.

No.	Date 1903-1905	No. counted per mass	Successive Totals	Av. per Egg mass	Max.	Min.	Range
1	March 25, 1903	764	764	764	764		764
2		531	1295	647.5			
3		533	1728	576			
4		495	2223	559			
5	Jan. 17, 1904	539	2763	552			
6		461	3223	537			
7		507	3730	532.9			
8		561	4291	536			
9	Jan. 25, 1905	509	4800	533.3			
10		347	5147	514.7			
11		173	5320	483.6			
12		250	5570	464			
13		362	5932	456			
14		331	6263	447			
15		594	6857	457			
16		282	7139	446			
17		300	7439	438			
18		163	7602	422		163	163
19		521	8123	427.5			
20		184	8307	415			
20			8307	415	764	163	601

Although this insect has been studied thoroughly, the estimates of the number of eggs deposited by it vary from one to eight hundred. On the whole, however, the estimates approch the average here obtained.

The egg-masses, from which these counts were made, were taken from various trees in Maryland, Virginia and the District of Columbia.

Prof. Jas. S. Hine, of the Ohio State University, who has spent the winter collecting in Guatemala, has returned with an excellent collection in various groups of animals but especially of insects, it being particularly rich in Diptera and Hemiptera.

* For the first and second of these series, see Ent. News, 1901, p. 305, and 1904, pp. 2-3.

Parasitic Hymenoptera of Algonquin, Illinois.—I.

By Wm. A. Nason, M. D.

(Continued from page 152, Vol. xvi, No. 5.)

L. ? *solenobiæ* Ashm.
May 6, 1894.
Sept. 17, 1895.
2 specimens.
L. tibator Cress.
3 specimens.
L. valida Cress.
1 specimen.
L. vicina Cress.
Sept. 19, 1894.
May 29, Oct. 13, 1895.
24 specimens.
L. ? *occidentalis* Ashm.
Aug. 8, 1895.
1 specimen.

CREMASTUS Grav.

C. ferrugineus Davis.
2 specimens.
C. hartii Ashm.
June 11, Sept. 10, 1895.
June 14, July 1, 1896.
20 specimens.

MESOCHORUS Grav.

M. americanus Cress.
Aug. 26, 30, 1894.
2 specimens.
M. luteipes Cress.
Sept. 21. 1894.
1 specimen.
M. aprilinus Ashm.
1 specimen.

PORIZON Grav.

P. ? *albipennis* Cress.
May 25, 1894.
1 specimen.

EIPHOSOMA Cress.

E. texana Cress.
July 10, 1895.
1 specimen.

THERSILOCHUS Holmgr.

T. mellipes Ash.
1 specimen.
T. micans Prov.
May 6, 1894.
Aug. 29, 1894.
2 specimens.
T. pallipes Prov.
May 23, June 6, 1895.
5 specimens.
T. montanus Ashm.
May 5, 1894.
1 specimen.
T. provancheri Ashm.
June 6-8, 1895.
2 specimens.

CERATOSOMA Cress.

C. rubyata Davis.
1 specimen.

TRICLISTUS Foerst.

T. curvator Fab.
June 23, 1896.
1 specimen.

METACŒLUS Foerst.

M. lævis Cress.
June 11, Oct. 9, 1893.
June 4, July 25, 1894.
May 8, Aug. 2, 1895.
May 21, Oct. 5, 1896.
24 specimens.

EXOCHUS Grav.

E. semirufus Cress.
1 specimen.

DELETAR Foerst.

D. undulatus Davis.
1 specimen.
D. obscurus Davis.
1 specimen.

ATMETUS Foerst.

A. nigritus Ashm.
May 7-9, 1895.
May 3, 1896.
3 specimens.
A. carniatus Prov.
July 19, 1895.
Aug. 2, 1895.
2 specimens.

ORTHOCENTRUS Grav.

O. nigricoxus Prov.
O medialis Davis.
1 specimen.
O. canadensis Prov.
July 23, 1895.
1 specimen.

CAMEROTOPS Foerst.

A. asperus Davis.
1 specimen.

BASSUS Grav.

B. lætatarius Fabr.
April 29, Sept. 19, 1894.
May 8, June 12, 1895.
May 20, Aug. 2, 1896.
27 specimens.
B. lætatarius var. *sycophanta* Walsh.
June 12, Sept. 10, 1895.
10 specimens.
B. lætatarius var. *tripicticrus* Walsh.
2 specimens.
B. scutellaris Cress.
May 12, Aug. 8, 1895.
9 specimens.

PROMETHUS Foerst.

P. elongatus Prov.
Aug. 31, 1894.
1 specimen.
P. ruficrus Walsh.
June 21, 1896.
2 specimens.

ZOOTREPHES Foerst.

Z. inconstans Davis.
May 14, 1894.
1 specimen.
Z. montanus Davis.
Aug. 10, 1895.
1 specimen.

ENIZEMUM Foerst.

E. tibiale Cress.
June 10, 1895.
1 specimen.

SYRPHOCTONUS Foerst.

S. agilis Cress.
May 10, 1896.
June 10. Oct. 16, 1895.
4 specimens.
S. pleuralis Cress.
June 13, 1895.
1 specimen.
S. pacificus Cress.
May 29, 1895.
July 12, 1895.
2 specimens.

HOMOTROPUS Foerst.

H. bicapillaris Walsh.
June 14, 1896.
1 specimen.
H. bi[illegible]illaris var. *albopictus* [illegible]lsh.
June 14, 1895.
1 specimen.

EXCAVARUS Davis.

E. annulipes Cress.

ADELOGNATHUS Holmg.

A. flavopictus Davis.

CATASTENUS Foerst.

C. glabrifrons Davis.
1 specimen.
C. valerius Davis.
1 specimen.

MIOMERIS Foerst.

M. nasoni Davis.
1 specimen.

HELICTES Haliday.

H. ruficornis Davis.
1 specimen.

CAMPOTHREPTUS Foerst.

C. nasutus Cress.
May 21, 1896.
1 specimen.

ŒTOPHORUS Foerst.

O. nasoni Davis.
1 specimen.

ECZETESIS Foerst.

E. paniscoides Ashm.

EUCEROS Grav.

E. obesa Davis.
1 specimen.
E. medialis Cress.
June 3, 1895.
1 specimen.
E. flavescens Cress.
2 specimens.

MONOBLASTUS Hartig.

M. varifrons Cress.

POLYBLASTUS Hartig.

P. varitarsus Grav.
June 6, 1895.
1 specimen.

LATHROLESTES Foerst.

L. nasoni Davis.

RHIMPHALEA Foerst.

R. brevicorpa Davis.
1 specimen.

DIALGES Foerst.

D. frontalis Davis.
May 19, 1896.
1 specimen.

QUADRIGANA Davis.

Q. americana Cress.
8 specimens.

TRYPHON Fallen.

T. seminiger Cress.
June 4, 1894.
June 19, July 10, 1895.
May 29. June 4, 1896.
21 specimens.
T. communis, var. *atripes*.
May 23, 1895.
1 specimen.

CALLIPHRURUS Foerst.

C. granulosus Davis.
1 specimen.

MESOLEIUS Holmg.

M. submarginatus Cress.
1 specimen.

SPANOTECNUS Foerst.

S. concolor Cress.
June 10, 1896.
1 specimen.

PROSMOSUS Foerst.

C. cymbaformus Davis.
1 specimen.

CATOGLYPTUS Foerst.

C. furcatus Cress.
June 4–13, 1895.
2 specimens.

ALEXETER Foerst.

A. honestus Cress.

POLYONCUS Foerst.

P. mentalis Davis.
July 12, 1895.
1 specimen.

AROTES Grav.

A. amœnus Cress.
2 specimens.

THALESSA Holmgr.

T. lunator Fabr.
June 23, 1895.
10 specimens.
T. sp.
2 specimens.

PERITHOUS Holmgr.

P. pleuralis Cress.
June 3, 1895.
3 specimens.

THERONIA Holmgr.

T. melanocephala Brulli.
1 specimen.

EPHIALTES Grav.

E. albipes Cress.
1 specimen.
E. irritator Fabr.
May 9, July 24, 1895.
April 25, July 4, 1896.
15 specimens.
E. rex Kriechb.
1 specimen.
E. thoracicus Cress.
Sept. 7, 1896.
1 specimen.

PIMPLA Fabr.

P. æqualis Prov.
Aug. 31, 1894.
1 specimen.
P. alboricta Cress.
June 15, 1895.
1 specimen.
P. annulipes.
May 13, June 28, 1894.
June 20, Sept. 17, 1895.
July 1, Aug. 8, 1896.
46 specimens.
P. conquisitor Say.
July 22, Oct. 17, 1894.
June 3, Sept. 10, 1895.
16 specimens.
P. conquisitor, var. *rufuscula* Davis.
June 7–14, 1895.
July 2, Aug. 2, 1896.
5 specimens.
P. indagatrix Walsh.
May 3, Aug. 30, 1894.
June 7, Sept. 29, 1895.
10 specimens.
P. inquisitor Say.
June 19, Aug. 29, 1894.
June 10, 1895.
June 23, 1896.
10 specimens.
P. investigatrix Walsh.
1 specimen.
P. pedalis Cress.
20 specimens.
P. picticornis Cress.
1 specimen.
P. pterelas Say.
Aug. 26–30, 1894.
Sept. 2, Oct. 16, 1895.
6 specimens.
P. rufopectus Cress.
Oct. 9, 1893.
June 11–14, 1895.
5 specimens.
P. rufovariata Cress.
June 20, Oct. 5, 1895.
July 17, Aug. 11, 1896.
4 specimens.
P. scriptifrons Cress.
Aug. 8, 1895.
2 specimens.
P. tenuicornis Cress.
4 specimens.
P. vidua Walsh.
June 10, 1894.
1 specimen.

CLISTOPYGA Grav.

C. nigrocephalus Davis.

GLYPTA Grav.

G. erratica Cress.
July 17, 1896.
1 specimen.

G. impressa Davis.
1 specimen.
G. pulchripes Cress.
Aug. 11, 1896.
1 specimen.
G. rufipleuralis Walsh.
April 27, June 14, 1896.
26 specimens.
G. rufiscutellaris Cress.
July 12, 1895.
1 specimen.
G. simplicipes Cress,
June 24, 1894.
June 13, 1895.
4 specimens.
G. varipes Cress.
1 specimen.

ARENETRA Holmgr.

A. canadensis Cress.
March 3-10, 1894.
11 specimens.

CYLLOCERIA Schiödte.

C. occidentalis Cress.
Aug. 31, 1894.
May 29, 1896.
2 specimens.

LAMPRONOTA Curtis.

L. americana Cress.
Sept. 19, 1894.
July 24, Sept. 17, 1895.
8 specimens.
L.? breviventris Walsh.
June 10, 1896.
1 specimen.
L. fractus Prov.
Sept. 17, 1895.
1 specimen.
L. exilis Cress.
June 10, 1896.
2 specimens.
L. montana Cress.
Oct. 4-10, 1895.
2 specimens.
L. parva Cress.
2 specimens.
L. varia Cress.
July 22, Aug. 3, 1894.
July 20-26, 1875.
5 specimens.

PHYTODIETUS Grav.

P. vulgaris Cress.
June 1, 1896.
3 specimens.

EUXORIDES Cress.

E. americanus Cress.
June 10, 1895.
1 specimen.

XYLONOMUS Grav.

X. stigmapterus Say.
1 specimen.

APLOMERUS Prov.

A. nasoni Davis.
1 specimen.

LABENA Cress.

L. apicalis Cress.
Sept. 10, 1895.
1 specimen.
L. grallator Say.
July 2, 1896.
5 specimens.

GROTEA Cress.

G. anguina Cress.
June 21, 1894.
2 specimens.

MAMMA, I don't understand these fire-flies.
Mamma—What puzzles you, dear?"
Well, ain't it funny that the wind don't blow their lights out?

Notes on a Small Collection of Orthoptera from the Lesser Antilles, with the Description of a New Species of Orphulella.

By James A. G. Rehn.

(Plate VIII.)

The collection from which the following notes were made was transmitted to the author by Mr. H. A. Ballou, Entomologist of the Imperial Department of Agriculture for the British West Indies. The bulk of the material was presented to the Academy of Natural Sciences of Philadelphia, a small number of uniques and species confused under one number being returned to the Department.

With few exceptions the following records are the first from the islands represented, several South American forms being here recorded from the West Indies for the first.

On comparison with the lists of St. Vincent and Grenada Orthoptera published by Brunner and Redtenbacher,* the number of species is found to be much less as the material is much less extensive, twenty-eight in number, while the St. Vincent and Grenada papers list eighty-two, but of the twenty-eight forms here treated, thirteen are not contained in the two previous papers.

Probably the most striking fact noticed in studying this collection is that regarding the distribution of the two species of *Orphulella* here treated. The widely distributed *O. punctata* is represented by specimens from Dominica and St. Lucia, having also been recorded from Grenada, St. Vincent and Trinidad, while on Barbados it is apparently replaced by a quite distinct species, which, judging from the amount of material examined, is as abundant as *O. punctata* is in the localities where found.

Family FORFICULIDÆ.

ANISOLABIS Fieber.

Anisolabis maritima (Gené).

Barbados. September 13, 1901. (In seaweed; H. M. Le-

* Proc. Zoöl. Soc., London, 1892, pp. 196–221; 1893, pp. 599–611.

froy.) [No. G 363.] Five specimens ranging in size from small immature individuals to adults.

This species was taken in October under dead wood in St. Vincent.

Anisolabis janeirensis (Dohrn).

1864. *F[orcinella] Janeirensis* Dohrn, Entom. Zeit. Stettin, xxv, p 285. [Rio de Janeiro, Brazil.]

Barbados. February 13, 1902. [No. 383.] One broken specimen. August 12, 1903. (Dr. Deane.) [No. 529.] One specimen. September 10, 1003. (H. A. Ballou.) One specimen.

Dominica. April 5, 1902. (Rotten wood.) One specimen.

This species has been recorded from St. Vincent, taken in January and October, under wood and leaves and in fruit.

One specimen examined (September 10, 1903) has the tegmina decidedly elongate and lateral, instead of broad and separated mesad by a slight space. This may be due to the specimen not having quite reached the imago state.

Family BLATTIDÆ.

ISCHNOPTERA Burmeister.

Ischnoptera occidentalis Saussure.

1862. *I[schnoptera] occidentalis* Saussure, Revue et Magasin de Zoologie, 2e ser., xiv, p. 170. [New Orleans.*]

Barbados. July 10, 1903. (H. A. Ballou.) [No. 213.] Three specimens.

Dominica. (H. M. Lefroy.) [No. G 213.] One specimen.

This species has previously been recorded from Grenada, San Domingo, Mexico, Peru and the type locality.

BLATTELLA Caudell.

Blattella supellectilium (Serville).

Barbados. November 5, 1901 (one). (H. M. Lefroy.) [No. G 107.] Two males. Bay Mansion. July, 1903. (H. A. Ballou.) [No. 560.] One female.

This species has previously been recorded in America from

* The original description simply gives "Nova" as the locality, but in the Mémoires (Mém. l'Hist. Nat. Mexiq., iv, p. 88) the locality New Orleans is indicated for the single specimen described.

southern Florida, Cuba, San Domingo, Jamaica, Porto Rico and Brazil.

Blattella conspersa (Brunner).

1865. *Ph*[*yllodromia*] *conspersa* Brunner, Nouv. Syst. Blatt., p. 106. [Brazil].

Barbados. [No. G 408.] One male.

This specimen agrees very well with the original description of this species, except that the lines on the pronotum are not apparent, only small spots being present. The great number of fine blackish dots sprinkled over the tegmina appears to be diagnostic of the species.

CERATINOPTERA Brunner.

1865. *Ceratinoptera* Brunner, Nouv. Syst. Blatt., pp. 46, 75.

Included *C. diaphana* (Fabricius), *picta*, *castanea* and *peruviana* Brunner, *pœyi* and *porcellana* Saussure. Of these *pœyi* and *porcellana* have been removed to *Plectoptera*, and *picta* has been selected as the type by Kirby.*

Ceratinoptera diaphana (Fabricius).

1793. [*Blatta*] *diaphana* Fabricius, Ent. Syst., ii. p. 11. [Islands of equatorial America.]

Barbados. Easy Hall. September 24, 1902. (H. M. Lefroy.) [No. 560.] One female.

This species has previously been recorded from Cuba, Porto Rico, St. Thomas and Bermuda.

PERIPLANETA Burmeister.

Periplaneta americana (Linnæus).

Barbados. June, 1901 and October 18, 1902. [No. 163.] Three specimens.

Periplaneta australasiæ (Fabricius).

Barbados. February 12, July and December, 1903. [No. 163.] Three specimens.

CHORISONEURA Brunner.

Chorisoneura mysteca (Saussure)?

1862. *Bl*[*atta*] *mysteca* Saussure, Revue et Magasin de Zoologie, 2e ser., xiv, p. 167. [Tropical Mexico.]

Barbados. October, 1902. (Miss Field.) [No. 408.] One specimen.

* A Synonym. Catal. Orth., i, p. 98, 1904.

This individual is referred to *mysteca* with some doubt. This species has been recorded from Grenada, as well as Bogota and several localities in Guatemala and Mexico.

LEUCOPHÆA Brunner.

Leucophæa maderæ (Fabricius).

Barbados. December 30, 1902, and September 26, 1902. [No. 108.] Three specimens.

This widely distributed tropical species has previously been recorded from St. Vincent.

PYCNOSCELUS Scudder.

Pycnoscelus surinamensis (Linnæus).

Barbados. February, 1900. (H. M. Lefroy, in part.) [No. G 20 and G 153.] Four specimens.

One individual (G 153) is very pale and considerably shrivelled, a condition probably due to it having been captured when freshly transformed into the condition of the imago.

This tropical and subtropical species has been taken in Grenada and St. Vincent.

PANCHLORA Burmeister.

Panchlora virescens (Thunberg).

"*Blatta virescens* Thunberg, Mém. Acad. Sci. St. Petersb., x, p. 278."

Montserrat. January, 1904. (H. A. Ballou.) [No. 153.] One female.

This species has previously been recorded from Cuba, Porto Rico, Mexico, Cayenne and Brazil and questionably from Costa Rica.

Family MANTIDÆ.

MUSONIA Stal.

Musonia surinama (Saussure).

Barbados. Bay Mansion. December, 1903. [No. 102.] One male, one female. November 7, 1903. (H. A. Ballou.) [No. 600.] One male. (H. M. Lefroy.) [No. G 102.] Two males.

This species has previously been recorded from Grenada, St. Vincent, Trinidad, Surinam and Venezuela.

PARASTAGMATOPTERA Saussure.

1871. *Parastagmatoptera* Saussure, Mém. l'Hist. Nat. Mexiq., ii, pt. I, p. 83.

Type: *Mantis flavoguttata* Serville.

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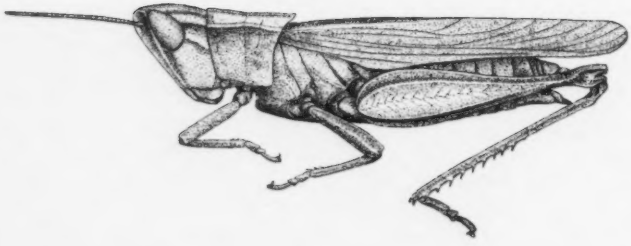

Fig. 1.—*Orphuella punctata* (De Geer). Female. Dominica. Dorsal view of head and pronotum. Fig. 2.—*Orphulella balloui* n. sp. Dorsal view of head and pronotum of female type. Fig. 3.—Lateral view of specimen represented in fig. 2 (× 3).

Parastagmatoptera lobipes Redtenbacher.

1892. *P[arastagmatoptera] lobipes* Redtenbacher, Proc. Zoöl. Soc. London, 1892, p. 206, pl. xv, fig. 8. [South end, St. Vincent.]

St. Vincent. August 30, 1902. (T. W. Campbell.) [No. G 453.] One female.

This species was originally described from St. Vincent, and has since been recorded from Grenada.

Family PHASMIDÆ.

CLONISTRIA Stal.

Clonistria linearis (Drury)?

St. Lucia. July, 1904. (H. H. Ballou.) [No. 622.] One male.

This species has been recorded from St. Vincent and Grenada, and the specimen listed above is placed here with a query, as true *linearis* (from Antigua) was very imperfectly described.

CALYNDA Stal.

Calynda keratosqueleton (Olivier).

1762. *Mantis keratosqueleton* Olivier, Encyc. Method., Ins., vii, p. 639. [Based on Stoll; Surinam.]

Barbados. September and October, 1902. [No. 623.] Two females.

This species has never before been recorded definitely from any one of the West Indies, several authors having credited it to the islands as a whole. A closely allied form, *C. cyphus* (Westwood) has been recorded from St. Vincent and Grenada, but in the absence of a description of the female sex of that species, and the apparently close relationship to Stoll's figure,* I prefer to tentatively use a name based on the same sex as the material in hand.

Family ACRIDIDÆ.

ORPHULELLA Giglio-Tos.

Orphulella punctata (De Geer). (Pl. viii, Fig. 1.)

St. Lucia. (No. 440.) One male, one female, one nymph.

Dominica: Middleham. November 25, 1891. (W. R. Elliot.) [No. 319.] One female.

* Natuurl. Afbeeld. Besch. Spooken, pl. xv, fig. 57.

Not separable from specimens from St. Vincent, Vera Cruz and Costa Rica. The species has previously been recorded from Grenada and St. Vincent, in the Lesser Antilles, as well as from Trinidad.

Orphulella balloui n. sp. (Pl. viii, Figs. 2 and 3).

Types: ♂ and ♀; Bay Estate, Barbados, West Indies, September 9, 1902 (♂) and September 30, 1902 (♀). (H. M. Lefroy.) [A. N. S. Phila.]

Allied to *O. punctata* (DeGeer) but differing in the slenderer form, the more retreating face, the narrower excavation of the fastigium, the longer eye, narrower costal expansion of the tegmina and the much slenderer caudal femora.

Size medium; form elongate, slender. Head with the occiput and vertex hardly rounded, the interspace between the eyes slightly less than the greatest width of the fastigium; fastigium acute in both sexes, the margins raised and cingulate, excavation limited to a narrow depression caudad of the margins in the female, the greater portion of the dorsal aspect of the fastigium depressed in the male and without any very distinct excavation; lateral foveolæ elongate trigonal; frontal costa strongly constricted dorsad, regularly and gradually expanding ventrad; lateral ocelli rather large, placed by the eye at the ventro-caudal angle of the lateral foveola; eye acute ovate, the apex directed dorso-cephalad, length over half again that of the infra-ocular portion of the genæ; antennæ depressed, subensiform, slightly shorter than the head and pronotum together. Pronotum slightly less than twice as long as the greatest dorsal width, slightly tectate, median and lateral carinæ distinct, the lateral parallel on about the cephalic half, slightly and gradually diverging on the caudal half; cephalic margin subtruncate, caudal margin obtuse-angulate; metazona slightly shorter than the prozona; lateral lobes with the ventro-caudal angle rectangulate. Tegmina elongate, considerably exceeding the apex of the abdomen and slightly exceeding the femora; apex rounded, costal expansion low. Interspace between the mesosternal lobes very distinctly (male) or slightly (female) longitudinal; interspace between the metasternal lobes very narrow and strongly longitudinal in the female, the lobes contiguous in the male. Cephalic and median limbs little inflated. Caudal femora slender, over four times as long as the greatest width, which is in the basal third, genicular region very slightly arched, lobes narrowly rounded; caudal tibiæ with eleven spines on the external and twelve on the internal margins.

General color varying from wood brown to russet, overlaid with the usual markings found in the brown phase of species of the genus; the male type having the base color buff on the head and pronotum. Postocular bars and rather weak longitudinal occipital bars bistre; eyes raw umber.

Pronotum with the lateral lobes marked dorsad with bistre in the male, all except a distinct bar of buff on the ventral portion of the lateral lobes being obscured. Tegmina of the general color, the anal areas lighter than discoidal in the male, maculations exceedingly faint in the female, and practically absent in the male. Caudal femora with the genicular arches burnt umber; ventral surface and the tips of the spines on the tibiæ bistre.

MEASUREMENTS:

	♂		♀	
Length of body,	15.	mm.	21.5	mm.
Length of pronotum,	3.	"	4.4	"
Greatest dorsal width of pronotum,	1.9	"	2.9	"
Length of tegmen,	14.	"	17.5	"
Length of caudal femur,	10.	"	12.	"

A series of twenty-one Barbados specimens have been examined in addition to the types, taken in the months of January, August, September and October. Considerable variation is exhibited in the size of the females, two specimens particularly (Bay Estate, September 20 and 25, 1902) being little larger than males. The coloration exhibits the great range of variation noticed in the species of this genus, a distinct green phase being contained in the collection and represented by two specimens, one of each sex. Some females are extremely dark colored, which condition is also found in *O. punctata*, while others are quite pale.

This species can readily be separated from *O. punctata* by the characters given in the diagnosis, the more appreciable being the more retreating face and the slenderer caudal femora.

I take pleasure in dedicating this species to Mr. H. A. Ballou, Entomologist to the Imperial Department of Agriculture for the West Indies, through whose kindness I received the present collection for study.

SCHISTOCERCA Stal.

Schistocerca pallens (Thunberg).

Barbados. November 15, 1902, and June 2, 1903. [No. 10.] One male, three females.

These specimens have the tegmina more pantherine than in Cuban specimens of this species which have been examined in this connection, but they are no doubt the same.

This species has been recorded from Cuba, Hayti, Jamaica and St. Vincent in the Antilles.

Family TETTIGONIDÆ.

TURPILIA Stal.

1874. *Turpilia* Stal, Recensio Orthopterorum, ii, p. 16, 31.

Type: *T. punctata* Stal.

Turpilia punctata Stal.

1874. *Turpilia punctata* Stal, Recensio Orthopterorum, ii, p. 31. [Island of St. Bartholomew.]

Dominica. October, 1901. (H. M. Lefroy.) [No. 221.] One female.

Montserrat. August, 1901 (on lime tree). (H. M. Lefroy.) [No. 221.] One female.

This species has previously been recorded only from the type locality.

XEROPHYLLOPTERYX* new name.

1895. *Xeropteryx* Brunner, Monographie der Pseudophylliden, p. 102. (Not of Butler, Journ. Linn. Soc., London, xvii, p. 203, 1883.)

Xerophyllopteryx fumosa (Brunner).

1895. *Xeropteryx fumosa* Brunner, Monographie der Pseudophylliden, p. 103, fig. 45. [South America; Guadeloupe.]

St. Lucia. February 25, 1902, and March, 1902. (H. M. Lefroy, in part.) [Nos. 223 and 405.] Three males, one female.

This species has not been recorded since the original description, and from the known localities would appear to have a rather wide distribution. Some variation is apparent in the size of the male individuals.

CONOCEPHALUS Thunberg.

Conocephalus obscurellus Redtenbacher.

Barbados. (H. M. Lefroy, in part.) September 27, 1903. [No. 80.] Six males, nine females.

This series exhibits a great amount of variation in the intensity of the coloration, the size being quite constant. This species ranges from the Gulf States to Venezuela.

Conocephalus macropterus Redtenbacher.

Barbados. September 7, 1903. [No. 384.] Two females.

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*ξηρος dry, φυλλας leaf, πτερυξ wing.

St. Lucia. February, 1902. [No. 384.] One female.

Montserrat. January, 1904. [H. A. Ballou.) [No. 384.] One female.

The individual from Montserrat considerably exceeds the others in size, equalling the Venezuela female mentioned by Redtenbacher.*

They all agree with a series of specimens from Jalapa, Vera Cruz, Mexico, which also exhibits considerable variation in size. This species ranges from Cuba to Buenos Ayres, and has been definitely recorded from Martinique and St. Vincent in the Lesser Antilles.

Family GRYLLIDÆ.

SCAPTERISCUS Scudder.

1868. *Scapteriscus* Scudder, Proc. Boston Soc. Nat. Hist., xi, p. 385.

The original description mentioned no included species, and in a later work † he includes eight species—*oxydactylus*, *tenuis*, *mexicanus*, *didactylus*, *vicinus*, *agassizii*, *variegatus* and *abbreviatus*. Of these the one standing first, *oxydactylus* (Perty), can be considered the type.

Scapteriscus variegatus (Burmeister).

1838. *Gr*[*yllotalpa*] *variegata* Burmeister, Handb. der Entom., ii, Abth. ii, i, p. 740. [Colombia.]

Barbados. July 10, 1903. (H. A. Ballou.) [No. 224.] One male.

This specimen has the wings shorter than the tegmina, in this resembling *S. abbreviatus* Scudder, which, however, has the tegmina of a very different shape. The species has been recorded from St. Lucia by Saussure.

GRYLLOTALPA Latreille.

1802. *Gryllotalpa* Latreille, Hist. Nat. Génér. et Partic. des Crust. et des Ins., iii, p. 275.

Type: *Gryllus gryllotalpa* Linnæus.

Gryllotalpa hexadactyla Perty.

1830–34. *Gryllotalpa hexadactyla* Perty, Delect. Anim. Art. Bras., p. 119, tab. xxiii, fig. 9. [In mountains of the Province of Minas Geraes, Brazil.]

St. Vincent. (H. M. Lefroy.) One specimen.

* Verh. K. K. Zool.-bot. Gesell. Wien, xli, p. 402, 1891.

† Mem. Peabody Acad., i, pp. 7–15, 1869.

Montserrat. January, 1904. (H. A. Ballou.) [No. 224.] One specimen.

This widely distributed species has been previously recorded from Guadeloupe, St. Vincent and Grenada in the Lesser Antilles.

GRYLLUS Linnæus.

Gryllus assimilis Fabricius.

Barbados. September 22, October 25, 1902 and February 6, 1903. (C. Todd, H. M. Lefroy and H. A. Ballou.) [No. 81.] Six males, nine females.

Dominica, Middleham. Nov. 25, 1901. (W. R. Elliot.) [No. 318.] One broken specimen.

St. Lucia. September 5, 1903. (H. A. Ballou.) [No. 81.] One female.

This species has been recorded from Martinique, St. Vincent and Grenada.

AMPHIACUSTA Saussure.

1874. *Amphiacusta* Saussure, Miss. Scient. Mex. et l'Amer. Cent., Orth., p. 444.

Included *annulipes* (Serville), *grandis* (Saussure), *fuscicornis* (Serville), *azteca* (Saussure), and *phalangium* (Saussure). Of these the first, *annulipes*, may be considered the type.

Amphiacusta caribea Saussure.

1897. *Amphiacustes caribeus* Saussure, Biol. Cent.-Amer., Orth., i, p. 248. [Guadeloupe.]

Barbados, Cottage. December 31, 1903. (R. Brown.) One male. Belleville. October 18, 1902. (R. Hamlyn-Harris.) [No. 616.] One female.

This species was previously known only from the type locality.

OROCHARIS Uhler.

1864. *Orocharis* Uhler, Proc. Ent. Soc. Phila., ii, p. 544.

Type. *O. saltator* Uhler.

Orocharis antillarum Saussure.

1874. *Orocharis Antillarum* Saussure, Miss. Scient. Mex. et l'Amer. Cent., Orth., p. 496. [Guadeloupe.]

Antigua, Bath. January 8, 1903. [No. 617.] One male. Barbados. (H. M. Lefroy.) [No. 617.] One male.

This species was previously known only from the original description and type locality.

Destructiveness of the Australian Roach Periplaneta australasiae.

By Henry Skinner.

January 14th, last, Mr. David Rust, Secretary of the Pennsylvania Horticultural Society, sent me some living specimens of this rather handsome roach and said it was eating everything from orchids to overcoats. I wrote to him for further information and received the following interesting reply. "The roaches came from the estate of Mr. James W. Paul, Jr., at Radnor, Pennsylvania. Joseph Hurley, the superintendent, informs me that the greenhouses, adjoining sheds, offices, etc., are swarming with them at night. They are also in the home of every man employed around the greenhouses. It is Mr. Hurley's opinion that these roaches came there last fall in the buckwheat chaff in which hyacinths, tulips, etc., are packed and in which they arrived from Holland. The roaches do not show any particular preference for any one plant, but their devastation has been general. Orchids, roses, carnations, both plants and flowers have been eaten. The workmen's clothes left hanging in the greenhouse had holes eaten in them. Mr. Hurley's office was invaded and a quantity of postage stamps in his desk were devoured. In this case he used a strong solution of lemon oil which killed every roach that it touched, but this remedy could not be used so strong in the green house. A few nights ago he put part of an apple with "rough on rats" on it on the kitchen floor in his house, and the next morning found seventy-five dead roaches. Pyrethrum powder, Petermen's roach food, Maurer's roach paste, etc. were used."

Not having heard anything further I suppose the roaches were kept in check or exterminated.

The species is so widely spread that it is a question whether they were introduced in the buckwheat chaff from Holland, although there is nothing improbable about it.

Mr. Wilhelm Junk, of Berlin, Germany, has recently published a directory of the entomologists of the entire world. It contains a full alphabetical index and will doubtless prove very useful for those persons wishing to exchange for exotic material. The price is five marks.

The Odonata of British Columbia.

By Raymond C. Osburn, New York City.

The Dragonflies of British Columbia have been much neglected. Until very recently (Mr. Currie's paper referred to below was issued in February, '05, as the present paper was nearing completion), only ten species were known from this region and these only by much scattered references. This fact led the writer to prepare for publication the results of some rather meagre and very much scattered collecting done during the summers of '01 and '02. Although the collecting was done merely as a side issue while connected with the Minnesota University Sea-side Station, the number of specimens taken by the writer amounts to over 350. This number has been somewhat augmented by the receipt of specimens from Messrs. R. V. Harvey of Queen's School, Vancouver, and E. M. Anderson of the Provincial Museum at Victoria. A still larger addition to the material has been made by Mr. Rolla P. Currie of the U. S. National Museum, who has very kindly turned over to me for study the material—about 140 specimens—taken by himself and Dr. Harrison G. Dyar, while on an expedition into the Kootenay District, southeastern British Columbia, in the summer of 1903. Mr. Currie has just published the results of the trip (Dragonflies of the Kootenay District of British Columbia, by Rolla P. Currie, Proc. Ent. Soc., Wash., VII, No, 1, pp. 16–20, January, '05, issued February 9, '05), but his records, as well as all previous records that could be obtained, are included here to show, as far as known, the range of the species within the province.

Mr. Harvey's material was taken at Vancouver, Mr. Anderson's chiefly at Shawnigan Lake, 20 miles northwest of Victoria, and Mr. Currie's at Kaslo, Loon Lake and Bear Lake, in the Kootenay District, together with a few specimens taken at Wellington, 75 miles north of Victoria. My own material ranges all the way across the province along the line of the Canadian Pacific Railway, about Victoria and Langford Lake at Port Renfrew. The last-mentioned place, the site of the Minnesota University Station, near the entrance to the Strait of Fuca, is unfavorable for Odonata, and during two months

spent here in 1901 and '02 only two specimens were taken, a male *Somatochlora forcipata* and a male *Enallagma caruncula-tum*. A trip of several miles up the Gordon River, a clear, cold, rapid, mountain stream, failed to bring to light a single dragonfly. On the other hand the region about Victoria is exceedingly rich. Near a country tavern known as the "Four-mile House," a small pond has been made by a railroad embankment cutting off a little corner of a tidal mud-flat. Around this artificial pond all the species mentioned for Victoria were taken. Langford Lake, about 12 miles from Victoria, was also found to be exceedingly rich collecting ground. A glance through the list will show that about half of the species mentioned for the province were taken here in a single day's collecting. At Glacier, near the top of the pass over the Selkirk Range, some collecting was done about pools in a small mountain meadow at about 6000 feet, and about Lake Marion at the same altitude. A few specimens were picked up also at Agassiz and Field.

The Odonate fauna of the region about Victoria is quite southern in character when compared with the remainder of the province. Under the influence of the warm Sound region a number of distinctly southern species, which do not occur elsewhere in the province, are found. Also, it will be seen from the list that there is a noticeably larger number of what we have been accustomed to call "eastern" forms than is the case farther to the south,—several of the species not having been previously reported west of the Rockies. This same feature of the distribution the writer has already noted in the Dipterous family Syrphidæ and has offered the suggestion (Diptera of B. C., Part II, The Syrphidæ, Canadian Entomologist, Aug., 1904) that it may be explained by the much lower mountain passes, while the region of high altitude is much narrower from east to west, and deserts do not exist. These conditions, with the practically continuous water way, would render the passage of species much easier than in regions farther south.

The list of species now known positively from British Columbia numbers 23. The ten species known for this region before the appearance of Currie's paper are: *Æschna constricta*, *Æ.*

californica, *Æ. multicolor*, *Somatochlora semicircularis*, *Tetragoneuria spinigera*, *Sympetrum madidum*, *S. illotum*, *Libellula forensis*, *L. exusta* and *Pachydiplax longipennis*. The present list can be considered only as a fair beginning in the study of British Columbia dragonflies. The collecting thus far has been very limited both as to time and locality and careful work throughout the season and extending over this wide and exceedingly varied region would doubtless add many species to the catalogue. The following species have been taken in adjoining territory and may be looked for in British Columbia with some confidence: *Calopteryx yakima* Hag., *Hetærina californica* Selys., *Lestes unguiculatus* Hag., *L. disjunctus* Selys., *Herpetogomphus compositus* Selys., *Ophiogomphus occidentis* Hag., *O. severus* Hag., *Gomphus confraternus* Selys., *G. sobrinus* Selys., *Anax junius* Drury, *Æschna sitchensis* Hag., *Æ. clepsydra* Say, *Somatochlora albicincta* Burm., *Sympetrum scoticum* Donov., *Libellula nodosticta* Hag., and *L. saturata* Uhler.

In the following list are includied a few notes on certain species taken at Seattle, Washington, and at Laggan and Banff, Alberta. The writer's thanks are due to Messrs. Currie, Harvey and Anderson for valuable material, and to Dr. P. P. Calvert for the comparison of certain specimens with authentic species in his collectiou.

LIST OF SPECIES.

Lestes congener Hagen.

Mr. Currie records a single male from Wellington, taken by Dyar, September 2, '03.

Lestes uncatus Kirby.

One male and two female specimens taken by Currie at Kaslo, August 5–7, '03.

Lestes forcipatus Rambur.

While the other species of *Lestes* appear to be rather rare, *forcipatus* is common in a number of widely separated localities. The writer found it common and pairing at Langford Lake, July 20, '02, and again at Glacier where it was common about Lake Marion. Two male specimens from Mr. Anderson are labeled Victoria, June, 1900, and Currie records ten specimens of both sexes from Kaslo on July 9 and August 6, '03.

Argia vivida Selys.

The occurrence of this species at Glacier, British Columbia, is somewhat surprisng as it is considerably farther northwest that any species of this genus has been known to occur. The record rests on a single male specimen taken by the writer over a stagnant pool in a small mountain meadow at an altitude of 6000 feet, August 22, '02. Dr. Calvert has kindly examined the specimen and finds it to compare closely with more southern examples. Three specimens, a male and two females all very teneral, were taken at Banff, Alberta, June 17, '01, near warm springs on the side of Sulphur Mt., and Dr. Calvert has also reported the species from Lo Lo Hot Springs, Mont. However, I have been informed by the manager of the C. P. R. hotel at Glacier that there are no warm springs known in that vicinity.

Amphiagrion saucium (Burmeister.)

Two male specimens taken at Victoria, July 17, '01. Both sexes taken at Seattle, Wash., July 14, '01. As Mr. E. B. Williamson has shown the identity of *Pyrrhosoma abbreviatum* Selys., with this species (Notes on a few Wyoming Dragonflies, ENTOMOLOGICAL NEWS, May, 1900), it needs only to be added that my specimens fall in line with his observations. Compared with Ohio material, my western specimens measure a trifle larger all around and are distinctly darker, more robust and more villose, especially on the legs, but the appendages of both sexes agree closely.

Enallagma cyathigerum Charpentier.

A common species taken from May to August. Victoria, July 19, '02, two males. Mr. Anderson has sent the writer a number of males (and questionable females also) from Shawnigan Lake, and Mr. Currie has reported it—33 specimens in all—from Kaslo, Loon Lake and Bear Lake on dates ranging from May 29th to August 6th. The writer found it very common and took several pairs *in coitu* at Seattle, Wash., July 14, '01.

Enallagma calverti Morse.

Mr. R. V. Harvey has sent me quite a number of specimens, among them a pair taken *in coitu*, from Vancouver, May 10 to

July 13, '02. Currie found it, 5 males and 1 female, at Loon Lake, Ainsworth, July 11, '03.

Enallagma carunculatum Morse.

This species seems as common in British Columbia as anywhere in the east and is one of the most abundant species noted for the province. About Langford Lake and Victoria it fairly swarms and many were taken pairing July 17, '01 and July 19, '02. Agassiz, July 18, '02, common. A single male was taken at Port Renfrew hovering about a tide-pool. Kaslo, 10 specimens, July 17th and August 6th, pairing (Currie). The writer has taken the species commonly also at Seattle, Wash., July 14, '01.

Ischnura erratica Calvert.

Not common but probably distributed throughout the warmer part of the Sound region of British Columbia and Washington. A pair was taken *in coitu* by Mr. R. V. Harvey on May 10, 1902, and later, June 2d, two more male specimens were taken. A single male was taken by the writer at Langford Lake, July 20, '02, and a pair was taken *in coitu* at Seattle, Wash., July 14, '01. The species has hitherto been known only from a male and female from Mendocino County, California, and a male and female from Olympia, Wash. In his description of the species (Odonata of Baja California, Proc. Calif. Acad. Sci., Series 2, Vol. iv, 1895), Dr. Calvert was unable to affirm positively the identity of the female though the probabilities were very great. The writer is able, by means of the above-mentioned material, to substantiate Dr. Calvert's assumption, and to confirm his description as well. It is a rather curious fact that the two female specimens, in my possession, which were taken *in coitu* with typical male specimens show exactly the same differences as the two described by Calvert. That is to say, my Vancouver specimen has the abdomen colored like that of the male, while my Seattle specimen has 8 and 9 black above without a trace of blue. It must be added that while the former has the post-ocular spots, thoracic stripes, etc,, blue as in the male, the second has not a trace of blue anywhere but all these markings are yellowish brown. These differences in color cannot be due to age as both were sexually mature and

both appear equally fresh, and there can be but one interpretation, viz., that there is here a color dimorphism in the females such as is known to exist in some other species of the genus.

Another fact of still greater interest bears on the relationship of the species to the genus. In describing the species Dr. Calvert places it doubtfully in this genus with the remark (*l. c.*, p. 492), "to write of the female that it possesses no ventral spine to the eighth segment is almost equivalent to excluding this species from the genus *Ischnura*." One of the females in my possession shows a very small though perfectly distinct ventral spine, the other agrees with Calvert's description in not possessing it. This variation has already been shown to exist in *I. denticollis* Burm., and *I. demorsa* Hag. (Calvert, Biol. Centr. Am., Neur., pp. 128–129).

Ischnura perparva (McLachlan MS.) Selys.

Quite common at the small pond near the Four-mile House at Victoria. The habits of the female are much like the bluish female of *verticalis* which it closely resembles in color. On my first visit to the pond only the females were noted, but on the second visit, July 19, '02, several pairs were taken *in coitu*. The females seemed much more common than the males. A single female was taken at Langford Lake, July 20, '02. Seattle, Wash., July 14, '01, two males.

Ischnura cervula Selys.

Common and widely distributed. Victoria, July 17, '01, and July 19, '02, both sexes abundant; Langford Lake, July 20, '02, abundant; Agassiz, July 18, '02, common. Shawnigan Lake, (Anderson). Kaslo, July 17, one male, and August 6, '03, one male (Currie). Seattle, Wash., July 14, '01, common.

(**Ophiogomphus occidentis** Hagen.

Two males of this species were taken along Pine Creek at the head of Lake Washington near Seattle, Wash., July 14, '01. It has not yet been noted for British Columbia but may be looked for in the swift streams of the southern part of the province).

(**Gomphus confraternus** Selys.

Five specimens, both sexes, of this species were taken about

Lake Washington, near Seattle, Wash., July 14, '01. May be looked for in British Columbia with confidence.)

(Gomphus sobrinus Selys.

Dr. J. G. Needham has described as the nymph of this species [New Dragonfly Nymphs in the U. S. National Museum, Proc. U. S. Natl. Mus., Vol. xxvii, p. 692 and Pl. 43], several *exuviæ* taken by the writer along the shore of Lake Washington near Seattle, July 14, '01. The imago was not observed, probably because it was too late in the season for the species.)

Cordulegaster dorsalis Hagen.

Two males and one female were taken at Vancouver, July 13, '02, by Mr. R. V. Harvey. Heretofore the species has been known from Alaska and Oregon.

Æschna juncea Linné.

This species is very widely distributed over northern North America, but only a single male specimen has been recorded for British Columbia. This was taken by Mr. Currie at Kaslo, August 7, '03.

Æschna californica (Hagen MS.) Calvert.

This species has already been recorded for British Columbia on the authority of Hagen. It was common at Victoria, July 17, '01, pairing and ovipositing. Two males taken at Langford Lake, July 19, '02. Seattle, Wash., July 14–15, '01.

Æschna multicolor Hagen.

Reported for Victoria, British Columbia, by Hagen (Colorado Report). Victoria, July 19, and Langford Lake, July 20, '02, common at the latter place, both sexes taken. Vancouver, July 8, '02, one male (Harvey). Loon Lake, July 11, '03, two males (Currie).

Æschna constricta Say.

This widely distributed species has already been reported for the province (Hagen, Colorado Report). Currie reports it as taken at Shawnigan Lake, August 31st, one male, and at Wellington, September 2, '03, one male, by Dr. H. G. Dyar. The writer has taken it at Laggan, July 22, '01, and at Banff, Alberta, July 17, '02.

Æschna sp.

Under this head Currie records four unidentifiable females taken at Kaslo, July 8th; S. Fork Creek, August 11th; Bear Lake, July 21st; and at Banff, Alberta, August 16, '02.

Tetragoneuria spinigera (Selys).

Common, flying over a low pasture near Langford Lake, July 20, '02. A number of specimens of both sexes were taken. The species seems much more active on the wing than *T. cynosura*. A male from Goldstream, July 16, 1899, and another from Victoria have been sent me by Mr. Anderson. Previously recorded from British Columbia by Hagen.

Somatochlora semicircularis (Selys).

Widely distributed. Two males taken at Langford Lake, July 20, '02, in company with *Tetragoneuria spinigera*. Six males at Glacier (Lake Marion), August 22, '02, Loon Lake, Ainsworth, July 11, 1 male, and Bear Lake, July 20, '03, 1 female (Currie). A single male specimen taken at Laggan, Alberta, August 24, '02, is very much smaller than my more western specimens, but Hagen (U. S. Geol. Surv. of Colorado, 1873, p. 591), mentions the same difference in his Colorado specimens as compared with a pair from Vancouver Island.

Somatochlora forcipata (Scudder.)

A single male specimen taken in a small sphagnum swamp on high ground at Port Renfrew, August 16, '02. Dr. Calvert, to whom it was referred for comparison, writes, "The Port Renfrew specimen is nearer my New England specimens of *forcipata* than to *semicircularis*, but I am very doubtful whether these two nominal species can be kept distinct." The extreme western occurence of this specimen in the range of *semicircularis* is interesting considering the doubtful validity of the latter as a species.

Cordulia shurtleffi Scudder.

This species has only been taken in the southeastern part of British Columbia where Mr. Currie found it common. Kaslo, May 29th, 1 male, June 10th, 3 males, and Loon Lake July 11th, 17 males. A single female was taken at Kaslo, June 7th, by Dr. Dyar.

Leucorhinia hudsonica (Selys).

A pair *in coitu* and a separate male taken May 10th, and a female taken July 13, '02, have been sent me from Vancouver by Mr. Harvey, and Currie has the following records: Kaslo, June 7th, 1 female (Dyar), June 11th, 1 male, and Ainsworth, June 8, '03, 1 male and 1 female (Dyar). The writer has taken the species at Banff, Alberta, July 15, '02.

Leucorhinia proxima (Hagen MS.) Calvert.

Currie records this species for Kaslo on dates ranging from June 1 to July 9, '03, six specimens in all, both sexes represented.

Sympetrum rubicundulum (Say) var. **assimilatum** (Uhler).

Two females from Harrison River taken by Mr. R. V. Harvey, June 30, '03, apparently belong here. While they are somewhat paler than *assimilatum* in my collection from North Dakota and the wings are flavescent only at the base, the size and general appearance correspond well and the vulvar lamina is exactly the same. The female, which Currie records as *S. madidum*, taken at Kaslo, August 5, '03, also belongs here. I have examined this specimen very carefully and Mr. Currie has reexamined it and writes me under date of March 22d, "I am inclined to agree with you in considering it *assimilatum*."

Sympetrum obtrusum (Hagen).

Currie records two females of this species from Kaslo, Aug. 7, '03. A female from Langford Lake, July 20, '03, and another from Victoria (Anderson) I would place here on account of the size and general appearance, but as the end of the abdomen is lacking in both they cannot be determined with certainty.

Sympetrum pallipes (Hagen).

Five males and two females of this species were taken at Langford Lake, July 20, '03. Two females were taken at Seattle, Wash., July 15, '01. Dr. Calvert has kindly compared these with authentic specimens and writes me that they "agree perfectly."

The writer feels quite certain that this and the two preceding nominal species are only varieties of *S. rubicundulum* Say.

The *S. decisum* of Hagen is also probably only another variety. Needham (Aquatic Insects in the Adirondacks, N. Y. State Mus., Bul. 47, September, '01, p. 521), has remarked in regard to *assimilatum*, *rubicundulum* and *obtrusum* that "they intergrade completely." *Decisum* has been recognized as a synonym of *obtrusum* by Calvert. *Pallipes* has the size and form of *assimilatum*, the genital hamules of the male are almost indistinguishable from those of *obtrusum*, while the vulvar lamina of

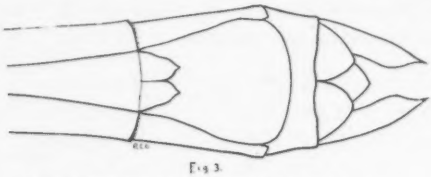

Fig 3.

Sympetrum pallipes, ventral view of ♀ app.

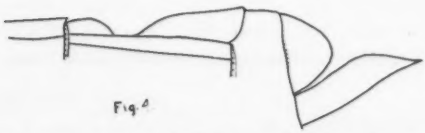

Fig 4

Sympetrum pallipes, lateral view of ♀ app. inverted.

the female resembles that of *rubicundulum* most closely, only in some cases it is a trifle more inflated. While combining the structural characters of these three forms, *pallipes* differs from all of them somewhat in coloration. Perhaps it would be better to list these as separate species until some one with abundant material and the types at hand has threshed the matter over thoroughly, especially as there is usually no difficulty in distinguishing them.

Sympetrum vicinum (Hagen).

Two teneral females taken at Langford Lake, July 20, '03. Currie reports one male from Wellington, September 2, '03 (Dyar).

Sympetrum semicinctum (Say).

Three females from Langford Lake, July 20, '02. Kaslo, August 6th, 1 female, and August 7, '03, 1 male (Currie).

Sympetrum costiferum (Hagen).

Victoria, July 19th, 1 female, and Langford Lake, July 20, '03, 1 male and 1 female. Dr. Dyar took a specimen also at Wellington, September 2, '03. I believe these are the first records for this and the two preceding species from the far west.

Sympetrum madidum (Hagen).

Previously recorded by Hagen (Notes and Descriptions of some North American Libellulinæ, Psyche, August–October, 1890), for Victoria where it was taken by H. Edwards. The writer has found it fairly common at Victoria, July 17, '01 and

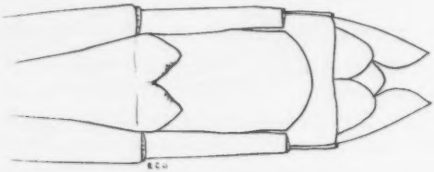

Fig. 1.

Sympetrum madidum, ventral view of ♀ app.

Fig. 2.

Sympetrum madidum, lateral view of ♀ app. inverted.

July 19, '02, and at Langford Lake, July 20, '02. The sexes were about equally common and oviposition was going on at this season. Mr. Anderson has sent me a male taken at Shawnigan Lake. A male and two females from Seattle, Wash., July 15, '01. The specimen recorded by Mr. Currie (*l. c.*, p. 19) from Kaslo, belongs probably to *S. assimllatum* (q. v.). At any rate it cannot belong here.

Hagen mentioned as a separate species *Diplax flavicosta* (Proc. Bost. Soc. Nat. Hist., 1875). Later he came to the conclusion that it is only a variety of *madidum* (Psyche, August–October, 1890), but he recorded four females from Victoria in

July under this head. The variety has not been noticed among my specimens.

Sympetrum illotum (Hagen).

Two females and one male were taken at Victoria, July 17, '01. Mr. Anderson took a single male at Shawnigan Lake. The species has been previously recorded for British Columbia. Taken also at Seattle, Wash., July 14, '01. The British Columbia and Washington specimens all seem to belong to the type form of the species.

Sympetrum corruptum (Hagen).

Mr. Currie found this species common at Kaslo in the Kootenay District from June 7 to July 2, '03, both sexes taken, 22 specimens in all. One male was also taken at Loon Lake, July 11, '03.

Mesothemis simplicicollis Say var. **collocata** Hagen.

Common about Victoria July 17, '01 and July 19, '02. On both of these dates it was taken pairing and observed ovipositing. Also a pair taken *in coitu* at Langford Lake, July 20, '02.

Ladona (Libellula) julia (Uhler).

Needham (Aquatic Insects in the Adirondacks, pp. 528–30) has recently re-separated *Libellula exusta* into the three original species: *exusta* Say, *deplanata* Ramb., and *julia* Uhler, on what seems to be a safe basis. At Langford Lake on July 20, '02, a number of specimens of both sexes were taken, and Mr. Anderson has sent me a male from Shawnigan Lake. These I can say without hesitation all belong to *julia*, as Needham indicates the species, agreeing exactly with specimens from North Dakota and Ohio. *L. exusta* has been recorded for British America, Vancouver Island and Washington, but these records were made while the species was in the undifferentiated condition, so to speak, and it seems probable that if they could be analyzed they would all be found to refer to *julia*.

An interesting habit of this species was observed at Langford Lake. Late in the afternoon many were found in woodland on high ground above the Lake resting on stones with the wings outspread against the side of the rock. When one was dis-

turbed it would fly to another stone and alight in the same position. Their brownish and pruinose colors were quite inconspicuous in such places except where the rocks had been blackened by a recent forest fire when they would stand out like silhouettes. Stumps and tree trunks seemed to have no special attractions for them except that one would occasionally alight, *libellula*-fashion, on the tip of a dead twig.

Ladona (Libellula) exusta (Say).

Recorded for Vancouver Island. (See *L. julia.*)

Libellula quadrimaculata Linné.

Very common. Victoria, July 17, '01 and July 19, '02. Pairing and ovipositing. Langford Lake, July 20, '02. Shawnigan Lake (Anderson). Currie records it from Kaslo on dates ranging from May 29 to July 2, '03, both sexes taken and two pairs *in coitu*.

Libellula forensis Hagen.

Common. Taken pairing and ovipositing. Victoria, July 17, '01 and July 19, '02, and Langford Lake, July 20, '02. Hagen (Colorado Report) records it also for Victoria. Mr. Anderson has sent me a number of specimens from Shawnigan Lake.

Plathemis lydia (Drury).

A single female taken at Victoria, July 17, '01, and Mr. Harvey has sent me a specimen, female, from Vancouver, July 14, '02. The writer took another specimen, also a female, at Seattle, Wash., July 14, '01.

Pachydiplax longipennis (Burmeister).

Hagen records this species from Victoria (Proc. Bost. Soc., Nat. Hist., xviii, p. 78, 1875), but it has not been noted recently.

Different Kinds of Types.

By H. T. Fernald, Ph.D., Amherst, Mass.

The increasing importance attached to type specimens in Entomology at the present time is a tendency which should be

encouraged. With a poor describer at work a description may be so indefinite as to give at most but an approximate idea of the insect and its relations to its nearest allies. In such cases the type becomes a "court of last resort" to which to refer, and anyone who has attempted to solve Walker's descriptive puzzles will appreciate the necessity of seeing the type specimens on which these descriptions were based.

But types are scattered in all portions of the globe and it is frequently the case that the personal study is impossible. Specimens may be sent for comparison with the type however, and if the comparison be made by a good authority, the specimens concerned should have an increased value over those not thus compared.

These and other facts have led to the establishment of various grades of relation between the type and other specimens of the species, and differing in their degree of importance. So far as the writer can learn, this was first suggested by Mr. Oldfield Thomas, F. Z. S., in a paper entitled "Suggestions for the more definite use of the word 'Type' and its compounds, as denoting specimens of a greater or less degree of Authenticity," published in the Procceedings of the Zoological Society of London for 1893, page 241, where the statement is made that the term "co-type" had already been introduced by Mr. C. O. Waterhouse.

The ideas and definitions suggested in this paper were later developed and somewhat modified by Lord Walsingham and J. H. Durrant in a pamphlet "Rules for Regulating Nomenclature," etc., published November 2, 1896, by Longmans, Green & Co., this pamphlet being generally referred to as the "Merton Rules."

This paper seems to have had a rather limited circulation; at least it is now almost impossible to obtain a copy of it, for the writer knows of cases where standing orders for it have been placed for several years in this country and in Europe without result. It seems desirable, therefore, to place the definitions of types as given in that paper before the Entomological public in some easily accessible place for reference. These rules are as follows:

No. 38. The type of a species belongs to one of the following categories:

(1) *Type* (described from a unique specimen or from a single specimen selected from a series).

(2) *Type* (= type ♂ + type ♀ described from a single specimen of each sex).

(3) *Co-types* (described from more than one specimen, no single one being selected as the type. The type = the sum of the co-types).

No. 39. Each of the remaining specimens of a series from which the type was selected is called a *Paratype*.

A specimen subsequently named by the author after comparison with the type, is called a *Metatype*.

A specimen named by another than the author, after comparison with the tvpe, is called a *Homotype*.

A specimen collected in the exact locality whence the type was obtained is called a *Topotype*.

" [We have added the term *Homotype* to those proposed by Mr. Oldfield Thomas (Pr. Z. Soc. Lond., 1893, 241–2, and have slightly restricted the original definition of *Metatype* to the exclusion of its necessarily being topotypical]."

It is evident from these rules that the "court of last resort" above mentioned must consist only of the classes defined under Rule 38, and that insects falling in any of the classes defined under Rule 39 are of less value. In fact a Topotype has no actual *type* standing whatever, as an insect from "the exact locality whence the type was obtained" may have been identified by a poor description, and not having been compared with the type itself may possibly even be an entirely different species!

A Homotype, to have its full value, should always bear on its "Homotype" label the name of the person making the comparison, for the personal equation in such cases is a factor which cannot always be safely neglected.

In spite of these facts, Paratypes, Metatypes and Homotypes are certainly more reliably named than insects identified by descriptions only, and their presence in a collection should make that collection far more valuable and trustworthy than would otherwise be the case.

ENTOMOLOGICAL NEWS.

[The Conductors of ENTOMOLOGICAL NEWS solicit and will thankfully receive items of news likely to interest its readers from any source. The author's name will be given in each case, for the information of cataloguers and bibliographers.]

To Contributors.—All contributions will be considered and passed upon at our earliest convenience, and, as far as may be, will be published according to date of reception. ENTOMOLOGICAL NEWS has reached a circulation, both in numbers and circumference, as to make it necessary to put "copy" into the hands of the printer, for each number, three weeks before date of issue. This should be remembered in sending special or important matter for a certain issue. Twenty-five "extras," without change in form, will be given free, when they are wanted; and this should be so stated on the MS., along with the number desired. The receipt of all papers will be acknowledged.—ED.

PHILADELPHIA, PA., JUNE, 1905.

We have often noticed the apparent lack of knowledge shown by some European writers in regard to the literature on Entomology in this country, and have wondered whether it was through ignorance or by design. There may be some excuse for this where articles appear in little known or sporadic publications that are not only difficult to obtain in this conntry but also in Europe. But there is no excuse when the well-known publications which go to all the important societies and scientific institutions abroad are taken into consideration. The Entomological work done in this country compares favorably with that of any other and should receive due consideration.

This contention can readily be substantiated by referring to Wytsman's "Genera Insectorum," a recent publication which reminds us of these facts. All the work is not faulty in this respect, but a number of the papers illustrate it. The most glaring is the work on the family Hesperidæ, by Mabille, where a list of the species of the world is supposed to be given. There are eighty-nine valid North American species omitted, and probably if it had not been that the Biologia Centrali-Americana had been referred to none of our American species since the time of Linnæus and Fabricius would have been mentioned.

A JOINT field meeting of the Entomological Societies of New York, Brooklyn, Newark and Philadelphia will be held at Jamesburg, N. J., on Tuesday, July 4th, 1905. All entomologists interested will be welcome to attend.

Entomological Literature.

MENGEL'S CATALOGUE OF THE ERYCINIDÆ OF THE WORLD.—Accurate catalogues are indispensible to the systematic worker in Entomology. In some families and even orders it is not a hopeless task to find out whether a given species is described, but without a good catalogue it involves far more labor than many of us have time to give it. A catalogue is always an inducement for others to study the group treated. Prof. Mengel has given us an accurate and painstaking piece of work, and has published it at his own expense. A good general catalogue of the butterflies is badly needed, and we hope some one will do for the other families what Prof. Mengel has done for the Erycinidæ.

The very interesting and instructive paper by Mr. and Mrs. G. W. Peckham on "The Instincts and Habits of the Solitary Wasps," published by the Wisconsin Biological Survey, Madison, 1898, has been revised and, with much additional matter, appears under the title "Wasps, Social and Solitary," by George W. Peckham and Elizabeth G. Peckham. With an Introduction by John Burroughs. Illustrations by James H. Emerton. Boston and New York, Houghton, Mifflin & Co. [April], 1905. Pp. xv, 311. The titles of the chapters are: Communal Life, Ammophila and and her Caterpillars, The Great Golden Digger, Several Little Wasps, Crabro, An Island Settlement, The Burrowers, The Wood-Borers, The Spider-Hunters, The Enemies of the Grasshopper, Workers in Clay, Sense of Direction, Instinct and Intelligence. From the Introduction we quote: "I am free to confess that I have had more delight in reading this book than in reading any other nature-book for a long time. Such a queer little people as it reveals to us, so whimsical, so fickle, so fussy, so forgetful, so wise and yet so foolish, such vicrims of routine and yet so individual, with such apparent foresight and yet such thoughtlessness, . . . hardly any two alike. . . ."

Miss Isabel McCracken has a paper on "A Study of the Inheritance of Dichromatism in *Lina lapponica*" in The Journal of Experimental Zoology, Vol. ii, No. 1, Baltimore, 1905, giving the results of breeding experiments on this Chrysomelid beetle carried on during 1904 at the Entomological Laboratory of Stanford University, California. There are two color forms of this species in both sexes, one with black elytra, the other with each elytron brown with 7 black spots. By breeding, cross-breeding and interbreeding these two forms through several generations, the experimenter sought to test Mendel's principles of dominance and segregation as shown by the color of the elytra. The results are expressed in a series of valuable tables, and from their summary we can quote only the following: "No amount of crossing between the two characters in question accomplishes any disintegration or breaking up of either one. These are absolutely fixed with reference to each other in this species. . . . Blacks appearing in a cross between the two opposing characters transmit black

only to the offspring when similars are bred together. The black character is, therefore, stable, or self-perpetuating in the first generation. Spotted [individuals appearing in a cross between the two opposing characters] transmit both opposing characters to the offspring, the offspring likewise transmitting both characters though bred from similar parents. In the third generation from similar parents the spotted appear to breed true." The article is well worthy of careful study.

Notes and News.

ENTOMOLOGICAL GLEANINGS FROM ALL QUARTERS OF THE GLOBE.

MRS. A. T. SLOSSON has changed her address from 38 E. 23d Street to 83 Irving Place, New York city. She will probably spend July and August in the White Mountains.

MESSRS. DAECKE, H. W. WENZEL, H. A. WENZEL AND SKINNER had a pleasant collecting trip on April 30th; Iona, N. J., was visited. *Bombylius pygmæus*, *Basiæschna janata*, *Neurocordulia uhleri*, and *Pyrgus centaureæ* were among the species taken. This is apparently the first record for *P. centaureæ* south of the Orange Mountains. Mr. Wenzel took many rare Scolytidæ and some new to his collection. Iona is in Gouceste county about 26 miles south of Camden.

WE HAVE received a circular of announcement of the courses offered at Cedar Point Lake Laboratory, of the Ohio State University, for the coming summer and which calls attention to the course in entomology. This embraces a study of different orders of insects, gives practical training in collecting, preparing, mounting, labeling and identifying insects, and is intended to furnish a practical field and laboratory experience for those who wish to get started in the methods of entomological study. Particulars may be had from PROF. HERBERT OSBORN, Columbus, Ohio.

ATLANTICUS (Orthoptera.)—On October 16, 1904, I took a female *Atlanticus* in dry upland woods near Cold Spring, Long Island, which is interesting for two reasons. First, because members of this genus are very rare in this vicinity; and, second, because it is almost absolutely intermediate beween the only two species that do occur here—*A. pachymerus* (Burm.) and *A. dorsalis* (Burm.).

The ovipositor of this specimen is 22 mm. long. Beutenmüller ('94, Bull. of Am. Mus. Nat. Hist., VI.) gives 30 mm. as the length of the ovipositor of *dorsalis* and 20 mm. of *pachymerus*. It is, thus, in this, nearer *pachymerus*. Its femur is 25 mm. long. Beutenmüller gives (p. 290 *loc cit*) for the female (?) *dorsalis* femur 27 mm. and for *pachymerus* 22 mm. This is, then, in this nearer *dorsalis*; and if we accept the measurement given on page 285, where no mention is made of the sex for

dosalis, it is undoubtedly *dorsalis* in this character. But *pachymerus* is the more common here. Furthermore the body-length is nearer *pachymerus* than *dorsalis*. I have no male from here, so cannot say concerning the tegmina, but according to Scudder ('94, Can. Ent. XXVI., p. 179 *seq.*) the only difference is that in *pachymerus* the exposed portion of the ♂ tegmina is almost as ample as the pronotum, and in *dorsalis* is less than ⅓ as ample.

Can it be that one of Burmeister's species is a synonym of the other? If not, I suppose we must call this specimen *dorsalis* on the ground that animals tend to be small at the extremes of their range.—FRANK E LUTZ.

AS TO GLOSSARIES.—It was interesting to me to see the list of Glossaries in the April number of the "NEWS" because I have another about ready for the printer. It is the revision of the Brooklyn "Explanation of Terms," referred to by Mr. Girault; but it is much more than a revision.

In the original edition there were 90 terms defined under the letter A; the revision definies nearly or quite 400. There were 34 terms under B; there are now 140, and the other letters have increased in proportion. Instead of less than 1500 terms, my cards number over 5000, and I am not sure that I have all the terms even now.

It is my intention to submit the manuscript to a number of specialists before it is sent to the printer, so it is not certain just how soon it will be in type; I hope to have it bear date in 1905. Meanwhile, I will be glad to receive suggestions and to get terms that have a special application in any order. I do not pretend to that technical acquaintance with other than the Lepidoptera and Coleoptera that is necessary to make sure of including all the terms used in descriptive work.—JOHN B. SMITH.

LAST AUGUST while reading Clarence Moore Weed's Life History of American Insects, on page 23, I came across the following quotation from Prof. J. H. Comstock. He was writing about the Cicindelas. "Before alighting they always turn so that they face us, and can then watch our movements."

Such action on the part of the beetle, if voluntary, would indicate greater intelligence than should be expected from an animal whose mental development is as low. I had seen similar statements before and determined to investigate their truth.

Seeking a place where these beetles were abundant, I began to flush them and watch closely when they alighted. Sure enough they all turned so as to face me. Satisfied that Prof. Comstock's statement was correct I began to retrace my steps still watching the alighting of the insects, but now they did not alight facing me but dropped to the ground in the direction of their flight. Pondering why in so short a time there should be such different action on the part of the insects when alighting, I cast about for an explanation. The place I had chosen for observing them was a sandy lane facing east and west; at the time there was a moderate breeze blowing from the west. At first I had walked with the wind then

against it. Could it be the wind that caused the insects to turn at one time and not at another.

That I might observe the action of the insects more closely a friend undertook their flushing while I stood by the side of the road hoping they would alight near me. Soon one did so. My friend was walking with the wind and the startled beetle after a short flight dropped to the ground just in front of me. Before alighting it made a quick sharp turn into the wind, folding its wings and dropped to the ground running a few steps as if unable to overcome the impetus of its flight. My friend then began to flush the beetles while walking against the wind. After a while I was again fortunate to have one alight near me. It did not turn before dropping to the ground but alighted in the direction in which it flew, that was against the wind. These observations were repeated many times with the same results. The insect observed was *Cicindela repanda*, and the deduction is that the turning of the insect just before alighting is more to alight easily by turning against the wind than for the purpose of facing the pursuer.—R. M. MOORE, M. D., Rochester, New York.

A CURIOUS disease from caterpillar hairs. Drs. G. E. de Schweinitz and E. A. Shumway in the Transactions of the American Ophthalmological Society for 1904, describe a peculiar disease of the eye known as Conjunctivitis nodosa. "The patient stated that while playing in the yard of the asylum her eye became inflamed, owing, as she expressed it, to something getting into the eye. . . . . Downward and inward on the bulbar conjunctiva were a number of flattened, grayish-yellow nodules, between which was a marked congestion of the conjunctival and episcleral vessels. Twenty-seven nodules could be differentiated. The whole condition strongly suggested tubercle of the conjunctiva. . . . . Directly in the centre of a certain number of the nodules is the section of a hair. . . . . The children are much accustomed to playing with caterpillars, and are in the habit, as one of the children stated, of scaring the young ones by throwing caterpillars at them. The caterpillar which is most used in this playful proceeding is the wooly bear (*Spilosoma virginica*)." —Brief abstract from the original paper.

Doings of Societies.

The February meeting of the Newark Entomological Society was held on the 12th, with President Keller in the chair and 20 members present. The minutes of the previous meeting were read and approved. Mr. L. Hafner, of Jersey City, and Mr. E. W. Scheuber, of Hoboken, were proposed and unanimously elected to membership. The Field Committee reported progress, also the Curators.

Mr. Dickerson showed a twin cocoon of *A. promethea*.

Prof. Smith presented to the Society a copy of his latest "report on mosquitos," containing nearly 500 pages and giving in detail a full account of the work of the last five years.

A vote of thanks was extended to Mr. Keller for a copy of "Comstock's Manual."

Mr. Grossbeck read a paper written by himself* on the life history of *Anthocharis genutia* based upon his own experiences and observations and showed imagos, chrysalis and parasites.

A vote of thanks was also extended to Mr. Reineker for presenting to the Society a picture frame and framing the enlarged photograph of the members.

On account of bad weather the discussion on *Xylina* was laid over till next meeting as Prof. Smith did not risk carrying his collection. After that adjournment.

OTTO BUCHHOLZ, *Secretary*.

The March meeting of the Newark Entomological Society was held on the 12th, with President Keller in the chair and 23 members present. Visitors were Dr. Vael, of Jersey City, and Mr. Buffen, of Newark. The minutes of the previous meeting were read and approved. Mr. George Franck, of Brooklyn, was proposed by Mr. Buchholz and unanimously elected to membership. The Field Committee reported that they were communicating with the other Societies and progressing favorably.

Mr. Brehme presented about 350 specimens of Coleoptera to the Society for which a vote of thanks was extended to him. Mr. Wormsbacher also received a vote of thanks for some specimens of Coleoptera; among them was found *Dynastes tityus* taken at Jersey City.

Prof. Smith had his entire collection of *Xylina* at hand.

A series of 9 specimens of Mr. Keller's collection proved to be new.

Another new species was reared by Mr. Doll in Utah.

OTTO BUCHHOLZ, *Secretary*.

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* Published in the NEWS for May, 1905, pp. 131–134.

A meeting of the Entomological Section of the Academy of Natural Sciences of Philadelphia was held January 26, 1905. Mr. Philip Laurent, Director, presiding. Nine persons were present.

Mr. Rehn exhibited Vol. I of Kirby's Catalogue of the Orthoptera. It contains the earwigs, roaches, mantids and walking-sticks. It represents the first general catalogue of the roaches since 1869; the first important work on mantids and the first since 1859 on phasmids. The speaker said it was an excellent work and most useful in fixing the types of Francis Walker.

Mr. Fred. Weigand and Mr. Newton Harvey were elected associates of the Section.

HENRY SKINNER, *Recorder.*

A meeting of the Entomological Section of the Academy of Natural Sciences of Philadelphia was held March 23, 1905. Vice-Director H. W. Wenzel presiding. Fifteen persons were present.

Mr. Viereck exhibited a series of bees of the genus *Perdita*, and remarked on the association of the species of this genus with the peculiar vegetation noticed in the Tularosa Valley, New Mexico.

The distribution through the several life zones was discussed, the greatest number of forms being peculiar to the Lower Sonoran Zone. The greater portion of the species are found in the southwestern United States, few species being recorded from the east.

Mr. Huntington exhibited some excellent photographs of Diptera and Coleoptera.

Mr. Daecke remarked on the great number of larvæ of Micro-lepidoptera and minute Diptera found in the twigs of annuals.

Dr. Calvert exhibited a series of the genus *Perithemis* and commented on the intermediates between the four nominal North and Central American species, the color pattern and certain characters of the venation being rather plastic. A discussion as to the method of treating and designating these

types and their intermediates was participated in by Messrs. Viereck, Wenzel, Daecke, Calvert and Rehn.

Dr. Calvert illustrated by diagram an involved nomenclatural problem regarding the Odonate genera *Erythemis* and *Mesothemis*.

J. A. G. REHN, *Recorder pro tem.*

A meeting of the American Entomological Society was held February 23, 1905. Dr. D. M. Castle in the chair. Fourteen persons were present.

The death of Dr. A. S. Packard, a corresponding member elected October 14, 1861, was announced.

An invitation from the Newark Society to join in a field meeting on July 4th was accepted.

Mr. Viereck said Prof. C. V. Riley had estimated the number of species of insects at ten millions and the Hymenoptera outnumbered all the other orders. The speaker commented on the great amount of time necessary to study the species of one continent alone, and all this time could be taken up with systematic work. He spoke of the value of segregating Lepidopterous larvæ in rearing them, so as to retain all Hymenopterous parasites so as to know their hosts. Mr. Rehn said there was but one true parasite known in the Orthoptera and that lived on a rat. He said another species oviposits in wood.

H. SKINNER, *Secretary.*

Minutes of meetings of Brooklyn Entomological Society held at the residence of Mr. George Franck, 1040 DeKalb Avenue, Brooklyn, N. Y.

December 1, 1904.—Nineteen persons present, the President in the chair. Mr. Edgar L. Dickerson, of Newark, N. J., was elected a member.

The President announced the death on November 10, 1904, at San Antonio, Texas, of Prof. F. G. Schaupp, the founder of the society, which announcement was followed by due expressions of regret by those present who had been formerly associated with him.

Mr. Wasmuth exhibited some specimens of *turnus* larvæ which he had taken in the latter part of November on wild cherry, the leaves of which, still green, he had heretofore found in December in sheltered localities in Brooklyn.

Mr. Engelhardt reported taking in November, 1903, a brood of *antiopa* larvæ which emerged January, 1904, the imagines being small with marginal maculation materially changed.

Dr. Zabriskie exhibited a section of a nest of an unusually large colony of the "Yellow Jacket," *Vespa germanica*, which he had excavated near his residence in Flatbush, L. I., upon the advent of cold weather. The nest originally consisted of nine combs, the diameters of the central one measuring 6½ inches by 9 inches respectively. The combs on either side decreased gradually in size and their aggregate thickness including the pedicels with which they were joined was some 6 inches to 7 inches. The exterior coverings adjacent to the earth were so loose and flaky in texture as to render preservation in their original form impossible. Many mature insects were found and three queens which were revived when warmed.

Messrs. Smith and Weeks both gave instances showing the unusually abundant occurrence of this insect during the past season, while on the other hand, as Prof. Smith stated, no *Heliothis armiger* had been observed on the corn in southern New Jersey.

General discussion as to the cause of variation in frequency of various species in certain years.

Mr. Weeks, while admitting that parasites and other natural enemies were factors, claimed that sudden climatic changes were most fatal to insect life. So long as the process of development of an egg or pupa had not been initiated great extremes could be safely endured, but if, through the influence of favorable temperature, the egg or pupa were partially developed, the larva recently hatched or about to moult, or the imago just prepared for flight, the sudden advent of severe cold accompanied by violent winds and more or less long continued chilling rains would almost inevitably result in the total annihilation of a species for the time being within the territory affected,

and these conditions would readily account for its subsequent rarity in certain years. As to the future effect of any particular storm or extreme in temperature it would be necessary to know the extent of development of each insect and the stage through which it was passing at the time to be able to predict with any degree of certainty upon its resultant abundance or rarity.

Messrs. Smith, Roberts, Wasmuth, Engelhardt and Doll gave instances in support of the above theory.

January 5, 1905.—Twenty-two persons present, the President in the chair. Mr. John Lewis Childs, of Floral Park, L. I., and Mr. William C. Wood, of 51 Fifth Ave., New York City, were elected members. The following officers were elected for the ensuing year: Jeremiah L. Zabriskie, President; Edward L. Graef, Vice-President; Christopher H. Roberts, Treasurer; Richard F. Pearsall, Librarian; George Franck, Curator; Archibald C. Weeks, Secretary. John B. Smith and Carl Schaffer, members of Executive Committee in conjunction with above-named officers.

At the suggestion of a delegation from Mr. Bischoff, of the Newark Entomological Society, Messrs. Smith, Franck and Schaffer were appointed a committee to arrange for a joint meeting on July 4th of the Philadelphia, Newark, New York and Brooklyn Societies.

Prof. Smith briefly reviewed the salient changes in entomological effort which had occurred during the past thirty years. At first when there was so much material which was comparatively new and undescribed, considerable attention was devoted to collecting and field work. Then followed systems of classification and studies in anatomy, physiology, histology and œcology and attempts at regulation of nomenclature; but experience had shown that the most effective work was that of the collector and observer of life histories and in these lines there had been a renewal of interest, not only in the verification of species and varieties, but in the details of insect existence, to our knowledge of which even the most indifferent worker is often able to contribute observations of value.

ARCHIBALD C. WEEKS, *Secretary.*

EXCHANGES.

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☞ These notices are continued as long as our limited space will allow; the new ones are added at the end of the column, and only when necessary those at the top (being longest in) are discontinued.

Exchange.—B. C. Lepidoptera in exchange for high grade guitar, typewriter, 3 A F. P. kodak, 4 B alvista or 5x7 Seneca No. 9 camera or like. Send description and conditions. Theo. Bryant, Wellington, B. C. Can.

Lepidoptera.—For exchange perfect specimens of *Pamphila aaronii*, *Satyrus alope* var *maritima*, *Pamphila panoquin*, *P. otho*, *egeremet*, *Yponomeuta multipunctella*. Send offers to Frank Haimbach, 1309 Allegheny Avenue, Philadelphia, Penna.

I have 400 *Promethea* (300 *Cynthia*, 100 *Cecropia*) and a few *Polyphemus* cocoons to exchange for other common N. A. pupæ or *Lepidoptera* in papers.—John H. West, 5335 E. Letterly St., Philadelphia, Pa.

Wanted in quantities, for cash or exchange, perfect specimens of common species of Lepidoptera, Coleoptera, Hymenoptera, Diptera and Hemiptera.—The Kny-Scheerer Co., Department of Natural Science, 255 Fourth Ave., N. Y. City.

Coleoptera.—I desire to exchange for good N. A. beetles especially from the southern states.—H. F. Wickham, Iowa City, Iowa.

Wanted.—Riley's 3rd, 4th and 6th Missouri Reports. Will pay cash for same.—Wilmon Newell, Box 583, Shreveport, La.

Promethea Cocoons to exchange for Lepidoptera or other cocoons. D. M. Fuller, 221 Lancaster St., Albany, N. Y.

Wanted.—Uhler's Papers on Hemiptera. Will give cash in exchange or insects, or any other papers. Will also name aquatic Hemiptera for privilege of examination. Write before sending.—J. R. de la Torre Bueno, 25 Broad St., New York City.

Lepidoptera.—Cocoons of North American *Limacodidæ* wanted. Will give *luna* cocoons in exchange.—John A. Grossbeck, 25 Totowa Ave., Paterson, N. J.

North American Lepidoptera wanted in exchange for others. Have hundreds of specimens to exchange.—Send list to Jos. H. Reading, 775 N. Rockwell St., Chicago.

I will make drawings in black and colors, in exchange for perfect Lepidoptera, not found in this locality.—W. Wild, 426 Baynes Street, Buffalo, New York.

Lepidoptera: I have some good Noctuidæ in exchange for desirable North American Heterocera. *Xylina*, *Calocampa* and *Plusiidæ* especially desired. Henry Engel, Box 35, Oak Station P. O., Allegheny Co., Pennsylvania.

Will contract to collect any order or group of insects this season for private collections, museums, colleges or any public institution. Duplicates for sale of all orders from Colorado, Arizona and New Mexico.—Ernest J. Oslar, Alcott P. O., Denver, Colorado.

Eastern Mass. moths wanted in exchange for same; also perfect colored sketches of larvæ of same.—C. V. Blackburn, 101 Pine Street, Woburn, Mass.

Wanted.—In all parts of North America correspondents who will collect *Cicindela* and *Chrysomela* for named Coleoptera and Lepidoptera of North, Central and South America, Europe and Australia.—Address Room 23, Zool. Building, University of Chicago, Chicago, Ill.

Psyche.—Copies of the February Number, 1904 (Vol. XI, No. 1), wanted. Cash or exchange given.—H. H. Newcomb, 43 Tremont Street, Boston, Mass.

Coleoptera.—I wish to buy North and Central American beetles.—Fred. C. Bowditch, 164 Rawson Road, Brookline, Mass.

Wanted in exchange for beautiful exotic and native butterflies, a live Japanese Nightingale or other brilliant colored birds.—Chas. F. Timm, 1255 Greene Avenue, Brooklyn, N. Y.

Exchange.—Perfect fertile ova of *C. colleta*, *A. luna* and *E. imperialis*, which I would like to exchange for fertile ova of other species.—Alfred C. Sampson, Sharon, Mass.

Have a number of books and pamphlets on Lepidoptera, also a zither to exchange for books not in my library, or for moths, geometers or micros.—Wm H. Broadwell, 275 High Street, Newark, N. J.

Correspondence wanted in order to exchange the common Lepidoptera of Cape Cod, for those from elsewhere.—Alfred C. Redfield, Barnstable, Mass.

Wanted.—Riley's 2d, 5th and 9th Misouri Reports. Will pay cash for same.—H. H. Newcomb, 43 Tremont Street, Boston Mass.

Exchange.—For a compound microscope, specifications, rack and pinion and fine adjustment, draw tube, one inch eye-piece, one inch and one-six inch objectives, divisible, inclination joint in case, with lock. Correspondence desired.—C. E. Montgomery, 10 Cabot Street, Portsmouth, N. H.

For Exchange.—Lepidoptera belonging to DeKalb County, Georgia, for specimens not found in that locality.—Robert Windsor Smith, Kirkwood, Georgia.

Proctotrypoidea Wanted.—Will identify specimens for privilege of study, or will take them in exchange for identified specimens of other groups.—C. T. Brues, Public Museum, Milwaukee, Wis.

Wanted.—As complete a named set as possible of the Pyralidæ of North America. Can offer five named Indo-Malayan Lepidoptera in exchange. Ernest Swinhoe, 6 Gunterstone Road, West Kensington, London W, England.

Lepidoptera from Southern States wanted in quantity for cash.—Please make offer to Charles Faust, Harvard, Ill.

Elateridæ and *Buprestidæ* wanted from all parts of North America, in exchange for North American Coleoptera. Cash paid for special desiderata —C. O. Houghton, Del. Coll. Agric. Expt. Sta., Newark, Del.

Ova wanted.—I will pay 3 cents each for any number up to 100 of vertile eggs of *Enchætisa Orgenensis* accompanied by the parent female.—H. H. Lyman, 384 St. Paul Street, Montreal, Canada.

I have many fine specimens of Entomology in papers left over from last season and will exchange and collect in this locality for Southern and Western specimens.—C. H. Ross, Des Moines, Iowa.

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